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ABSTRACT

DACUM (Developing a Curriculum) is an approach to curriculum development that can also be used as a method of curriculum evaluation. To implement the DACUM process, a group of resource persons from the community works together to define the competencies or skills that are essential to a vocation. The result of the analysis is organized into a competency profile sheet. This profile sheet is then used to build the curriculum or to evaluate current curriculum content and organization. This manual, prepared for El Paso Community College faculty members, describes the DACUM process and provides guidelines for implementing it. The handbook is organized in 11 sections. The first two sections of the handbook provide an overview of the DACUM process and terminology, while the next two sections list faculty expectations of the DACUM process and provide guidelines for DACUM panel selection. Section 5 describes the curriculum model components; and the following three sections describe programs and competencies and set out guidelines for standardized course outlines and course syllabuses. Sections 9 and 10 provide guidelines for developing a criterion-referenced exam and a list of performance objectives. The final section of the guide contains blank forms to be used in the DACUM process. (KC)

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A GUIDE TO THE DACUM PROCESS AT EL PASO COMMUNITY COLLEGE

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EL PASO COMMUNITY COLLEGE
THE DACUM PROCESS
FACULTY HANDBOOK

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AN OVERVIEW OF THE DACUM PROCESS

WHAT DOES DACUM MEAN?

DACUM stands for Developing A CurriculUM.

WHAT IS DACUM?

DACUM is an approach to curriculum development. It is also used as a method of curriculum evaluation.

HOW DOES DACUM WORK?

A group of resource persons from the community works together to define the competencies or skills that are essential to a vocation. The result of the analysis is organized into a competency profile sheet.

The profile sheet is then utilized to build the curriculum or to evaluate current curriculum content and organization.

WHO PARTICIPATES IN DACUM?

The group should be composed of twelve individuals who are experts in the vocational area. Ten members of the group should be currently employed within the occupation. The additional two members should be in a supervisory position and currently working in the field.

An instructor of the existing or proposed program attends the DACUM session as an observer/recorder. The instructor listens to the discussion but does not provide input except to clarify a participant's question. The primary role of the instructor is to act as a recorder, documenting the comptencies and/or enabling behaviors for the group.

A DACUM facilitator coordinates the group's actions throughout the process. The facilitator concentrates on group process and outcomes rather than on actual content.

WHAT HAPPENS DURING THE DACUM?

Group members are guided by the facilitator through several steps to reach the end product of competency statements. These steps MAY include:

1. Discussion of the characteristics of the occupation.
2. Identification of major areas of competence.
3. Identification of specific behaviors (skills or tasks) within each area of competence.
4. Organization of the behaviors in a realistic and logical sequence.
5. Definition of competence levels for the behaviors.

During the meeting, the competencies and specific behaviors are written on 5 X 7 index cards which can be taped to the wall. These cards can then be rearranged throughout the session as new data emerges from the discussion.

WHAT HAPPENS AFTER DACUM?

Following the group's analysis of the vocation, a competency profile sheet is prepared based upon the final organization of competencies and behaviors. Employers are surveyed with the DACUM results. The competency profile sheet is then utilized by faculty to either develop a new program or to evaluate an existing program.

IN DEVELOPING A NEW PROGRAM courses are either developed or selected from existing college courses, based upon the suggested sequence presented within the competency profile. Additional academic requirements set forth by the institution and/or accreditation bodies must be incorporated within the total curriculum. Once a tentative program is identified by the faculty member(s), it is reviewed by the appropriate advisory committee and then enters the college's curriculum approval process.

IN EVALUATING A CURRENT PROGRAM, the competency profile sheet is compared to current course outlines. Location of each specific behavior is specified according to course(s). The resulting analysis is then reviewed for the following areas:

1. Are competencies and specific behaviors currently taught somewhere within the program?
2. What is the specific course in which each competency/behavior is currently introduced?
3. Are those competencies/behaviors currently taught in the same sequence as indicated by the competency profile sheet?
4. What is the appropriate course placement for those competencies/behaviors not currently taught in the program?
5. Are there areas within current course content which are not included within the competency profile? If yes, are they required by either the college or accreditation bodies? Are they a part of skill development? Are there reasons for maintaining them in the program?

Final analysis of collected data will result in one of the following conclusions:

1. Current program curriculum is validated with no changes needed.
2. Current program curriculum requires sequence revision of courses or content.
3. Current program curriculum needs content added or deleted to meet recommendations.

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The previous decisions allow the faculty to proceed with course outline revision and/or course development according to college procedures, as well as stating program outcomes. All course/program modifications as a result of the DACUM process are reviewed by advisory committee members.

ADDITIONAL UTILIZATION OF DACUM OUTCOMES

Course/program competencies identified in the DACUM process may be adapted to the evaluation process. The competency profile sheet may be used to monitor student progress through the program. When combined with a rating scale, the profile may serve as an evaluation tool. The specific objectives/behaviors may become the basis for criterion-referenced unit examinations and comprehensive final examinations, as well as challenge examinations for course credit.

Articulation of programs within the college with those of other institutions is the final step of the process. Articulation involves the coordination of the course/program content with other institutions, whether it be at the high school or university level. This process allows students to transfer credits and/or prerequisite competencies. The DACUM competency profile and accompanying program analysis provide the basis for articulation agreements between institutions.

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DACUM ANALYSIS

DENTAL HYGIENE

BLOCK: 1.0	EDUCATE PATIENT	ADAPT INSTRUCTION TO AGE AND EDUCATIONAL LEVEL	TEACH USE OF DENTAL AIDS (E.G., FLUORIDES; ADJUNCTS)	TEACH CARE OF DENTAL APPLIANCES	TEACH RECOGNITION OF ORAL DISEASE	EXPLAIN THE DISEASE PROCESSES	RELATE MEDICAL CONDITION TO ORAL HEALTH
BLOCK: 1.0		EXPLAIN PROCEDURES (E.G., X-RAYS, EQUIPMENT, OFFICE	PROCEDURES, PRE- AND POST-OP PROCEDURES)	EXPLAIN TREATMENT MODALITIES (E.G., SURGERY,	ENDODONTIES; GENERAL DENT.)	PROVIDE MEDICATION INFORMATION	USE INSTRUCTIONAL AIDS (E.G., FLIPCHARTS; MODELS)
BLOCK: 1.0		TEACH IN A VARIETY OF SITUATIONS (E.G.,	CLASSROOM, HEA FAIR)	REINFORCE EDUCATION			
BLOCK: 2.0	COMMUNICATE WITH OTHERS	ANSWER QUESTIONS	USE APPROPRIATE TERMINOLOGY	ASSESS PATIENT'S UNDERSTANDING OF INSTRUCTIONS	AND EXPLANATIONS	DEVELOP AN EMPATHY FOR PATIENTS	DEMONSTRATE ACTIVE LISTENING SKILLS
BLOCK: 2.0		FACILITATE MOTIVATION	ESTABLISH AND MAINTAIN COMMUNICATION WITH MEDICAL TEAM	ESTABLISH AND MAINTAIN COMMUNICATION WITH MEDICAL TEAM	ESTABLISH AND MAINTAIN COMMUNICATION W/SIGNIFICANT OTHERS	ASSERT AUTHORITY	DEMONSTRATE PUBLIC SPEAKING SKILLS
BLOCK: 2.0		PERFORM INTERVIEWING SKILLS	DEMONSTRATE BASIC WRITING SKILLS	WRITE A RESUME			

DATE: July 24, 1984

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DACUM ANALYSIS

DENTAL HYGIENE

BLOCK: 3.0	EXHIBIT PROFESSION-ALISM	RECOGNIZE AND PRACTICE CODE OF ETHICS	DEFINE PERSONAL DENTAL PHILOSOPHY	MAINTAIN PROFESSIONAL ATTITUDE	EXHIBIT PROFESSIONAL APPEARANCE	MAINTAIN QUALITY ASSURANCE	CONTINUE PROFESSIONAL EDUCATION
BLOCK: 3.0		RECOGNIZE ORGANIZATIONS WITHIN PROFESSION	DEVELOP/ REVIEW JOB DESCRIPTION				
BLOCK: 4.0	ANALYZE LEGAL ISSUES	IDENTIFY STATE DENTAL LAWS	MAINTAIN LICENSURE CERTIFICATIONS	IDENTIFY LEGAL LIMITATIONS/ LIABILITIES	IDENTIFY LEGAL RESPON-SIBILITIES (E.G., CONFI-DENTIALITY,	INFORMED CONSENT, CHARTING)	PARTICIPATE IN LEGISLATIVE PROCESS
BLOCK: 5.0	PREVENT DISEASE TRANSMISSION	DEMONSTRATE HAND-SCRUBBING	UTILIZE MASK AND GLOVES AND SAFETY GLASSES	PERFORM DISINFECTION OF EQUIPMENT & NON-STERI-LIZABLE ITEMS	PERFORM STERILIZATION		
BLOCK: 6.0	ASSESS THE PATIENT	EVALUATE GENERAL APPEARANCE AND ATTITUDE	TAKE AND REVIEW MEDICAL HISTORY	TAKE AND RECORD VITAL SIGNS	PERFORM AND RECORD HEAD AND NECK EXAMINATION	PERFORM AND RECORD ORAL INSPECTION	CHART HARD TISSUE
BLOCK: 6.0		OBTAIN MEDICAL CLEARANCE	PROBE PERIODONTIUM AND RECORD	EVALUATE DENTAL I.Q.	CREATE OR REVISE HYGIENE TREATMENT PLAN		

DATE: 9 July 24, 1984

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DACUM ANALYSIS

DENTAL HYGIENE

BLOCK: 7.0	PERFORM PROPHYLAXIS	REMOVE DENTAL DEPOSITS	PERFORM ULTRASONIC SCALING	POLISH TOOTH SURFACES	FLOSS THE TEETH	CLEAN DENTAL APPLIANCES	APPLY FLUORIDE
BLOCK: 8.0	PERFORM RADIOLOGIC SKILLS	PRACTICE RADIOLOGIC SAFETY	OPERATE VARIOUS RADIOLOGIC EQUIPMENT	(E.G., PANO; CEPHALIC)	PERFORM BI-SECTING ANGLE AND PARALLELING TECHNIQUES	EXPOSE DENTAL FILMS	DEVELOP AND MOUNT DENTAL FILMS
BLOCK: 8.0		IDENTIFY ANATOMICAL LANDMARKS					
BLOCK: 9.0	PERFORM ADJUNCTIVE SKILLS	ADAPT TECHNIQUES TO SPECIAL PATIENTS (E.G.	MEDICALLY COMPROMISED AND HANDICAPPED)	CREATE DENTAL HEALTH AIDS	POSITION PATIENT AND OPERATOR	IDENTIFY DENTAL INSTRUMENTS	ORGANIZE EQUIPMENT AND INSTRUMENTS
BLOCK: 9.0		MAINTAIN EQUIPMENT AND INSTRUMENTS	IDENTIFY DENTAL MATERIALS	MANIPULATE DENTAL MATERIALS	ASSIST WITH OPERATIVE DENTAL PROCEDURES	PERFORM ISO-LATION TECH-NIQUES (E.G., COTTON ROLLS,	RUBBER DAMS)
BLOCK: 9.0		POLISH AMALGAMS	APPLY AND REMOVE TEMPORARY FILLINGS	REMOVE SUTURES	APPLY AND REMOVE SOCKET DRESSINGS	INSERT AND REMOVE REMOVABLE DENTAL APPLIANCES	APPLY TOPICAL ANESTHETICS

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DACUM ANALYSIS

DENTAL HYGIENE

BLOCK: 9.0		APPLY DESENSITIZING AGENTS	PLACE AND REMOVE PERIODONTAL PACKS	PLACE AND REMOVE MATRIX BAND AND WEDGES	FIT STAINLESS STEEL CROWNS AND BANDS	TAKE INTRA-ORAL & EXTRA-ORAL PHOTOGRAPHS	
BLOCK: 10.0	DEMONSTRATE EMERGENCY PROCEDURES	OBTAIN AND MAINTAIN CPR CERTIFICATION	RECOGNIZE MEDICAL EMERGENCIES (E.G.,	HEMORRHAGE; ANAPHYLAXIS; DIABETIC)	SUMMON MEDICAL ASSISTANCE	AID IN APPROPRIATE TREATMENT	APPLY FIRST-AID TECHNIQUES
BLOCK: 10.0		ADMINISTER OXYGEN	ASSIST IN DEVELOPMENT OF EMERGENCY PROTOCOLS				
BLOCK: 11.0	PERFORM OFFICE SKILLS	USE TELEPHONE SKILLS (E.G., COURTESY AND OPERATION)	SCHEDULE APPOINTMENTS	MAINTAIN RECORDS (E.G., DENTAL & FINANCIAL)	ASSIST WITH PATIENT REFERRALS	ESTABLISH AND MAINTAIN RECALL SYSTEM	INVENTORY/ ORDER SUPPLIES
BLOCK: 12.0	DEMONSTRATE EXPANDED DUTIES	APPLY SEALANTS	TAKE ALGINATE IMPRESSIONS	PERFORM ROOT PLANING AND SUBGINGIVAL CURETTAGE	PLACE BASES	PLACE AND CARVE RESTORATIONS	ASSIST WITH ADMINISTRA-TION OF NITROUS OXIDE
BLOCK: 12.0		ASSIST WITH ADMINISTRA-TION OF LOCAL ANESTHETIC INFILTRATION					

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TERMINOLOGY ASSOCIATED WITH DACUM AND CBE

Activity, Operation, or Step--One or more of a series of actions necessary to complete a task.

Competence--Achievement of the knowledge, skills, and attitudes required by a worker in order to perform a given occupational task.

Competency--A description of the ability one possesses when they are able to perform a given occupational task effectively and efficiently.

Competency-Based Education (CBE)--An instructional program for preparing students that adheres to the essential elements and desirable characteristics of competency-based education. Programs of this type are also sometimes called performance-based education (PBE).

Competency Profile--A graphic portrayal of all the duties and associated task statements important to workers in a given occupation. An occupational profile chart is used by many institutions to record competency attainment and to help assess student needs. Also used are the terms task list, occupational profile, and DACUM chart.

Coordinator--The person who plans the DACUM occupational analysis process, makes the necessary preworkshop arrangements--including the selection of the committee occupational experts--and provides for verification of the task statements.

Criterion-Referenced Measure--The standards, established in advance of instruction, that will be used for assessing the students' development of the skill, knowledge, and/or attitude as stated in the performance objective. The standards are based on actual occupational standards and do not involve measuring the performance of one student against the performance of other students.

Curriculum--A description or composite of statements about "what is to be learned" by a student in a particular instructional program; a product that states the "intended learning outcomes" that have been selected and ordered.

DACUM--An acronym for Developing A Curriculum. It is an approach to occupational analysis that involves bringing a committee of occupational experts together under the leadership of a trained facilitator. They use modified brainstorming techniques to specify in detail the duties and tasks that successful workers in their occupation must perform.

Duty--An arbritrary clustering of related tasks into a broad functional area or general area of responsibility.

Educational (Training) Program--The complete curriculum and instruction (what and how) that is designed to prepare a person or group of persons for employment in a job or other particular performance situation.

Enabling Objective--One of the several process-type objectives that help students progress toward achievement of a terminal objective.

Facilitator--The person who leads the DACUM occupational analysis workshop to identify the actual job duties and tasks.

Feedback--A learning activity in which the learner is provided with information about his/her progress through model answers, model critiques, product/performance checklists, or other means.

Individualized Instruction--An approach for managing the instructional process within which the focus is on helping individual learners (as opposed to groups of learners) acquire the knowledge, skills, and attitudes needed. It is geared to the student's own needs, learning preferences, and rate of learning.

Information Sheet--Segment of a learning package (module or learning guide) that is used to provide cognitive information to the learner.

Instruction--Whereas curriculum identifies the content or "what is to be learned," instruction is the process, the how, or the means by which the intended learning will be achieved.

Job--A specific position requiring the performance of specific tasks--essentially the same tasks are performed by all workers having the same title.

Learning Activity--The required and/or optional learning steps that the student takes in completing a learning package.

Learning Package--A generic term used to describe the many types of student learning materials used in most CBE programs. Two commonly used types are learning guides and modules.

- Learning Guide--A type of learning package that usually contains a terminal objective, enabling objectives, directions for learning activities, a listing of the external supportive resources needed, and evaluation activities. While learning guides are developed in a wide variety of formats, most are dependent upon external resources to provide the essential content needed.
- Module--A type of learning package that usually includes a terminal objective, enabling objectives, essential cognitive information, and evaluation activities. While modules are developed in a wide variety of formats, most are self-contained, transportable, and designed for either individual or group use.

Occupational Analysis--A process used to identify the duties and tasks that are important to workers in any given occupation. A number of alternative and acceptable approaches to occupational analysis are available. Also frequently called job analysis.

Occupational Cluster--A grouping of jobs that are related by the similarity of the tasks performed by the various workers.

Performance Checklist--A list of specific criteria, usually based on actual occupational standards, that is used to evaluate the process used and/or product developed by a worker when performing an occupational task.

Performance Objective--A statement describing desired student performance, the conditions under which the performance is to occur, and the criteria by which the performance will be evaluated. The student is expected to be able to do something, rather than to simply know something. Thus, while knowledge is required in order to perform correctly, emphasis is place on observable behavior.

Resource Person--The professional educator who is directly responsible for guiding trainees and helping them plan and carry out their professional development programs.

Skill--The ability to perform occupational tasks with a degree of proficiency within a given occupation. Skill is conceived of as a composite of three completely interdependent components: cognitive, affective, and psychomotor.

Step--A term referring to the next level into which all job tasks may be subdivided. Also commonly referred to as activities, operations, or elements.

Task--A work activity that is discrete, observable, performed within a limited period of time, and that leads to a product, service, or desision. Tasks are also frequently referred to as the skills or competencies that students or trainees must obtain in order to be successful workers.

Task Analysis--The process of analyzing each occupational task (identified through occupational or job analysis) to determine the knowledge, attitudes, and skills required of workers performing it.

Task Statement--A description of a meaningful unit of work that contains an action verb and an object that receives the action (it may also contain one or more qualifiers) and represents a typical job assignment that an employer or customer would pay for.

Verification--The process of having experts review and confirm or refute the importance of the task (competency) statements identified through occupational analysis. Reviewers are usually selected from the ranks of practicing workers and immediate supervisors of such workers. This process is also sometimes referred to as validation.

EL PASO COMMUNITY COLLEGE
DACUM PROCESS

EXPECTATIONS OF FACULTY PARTICIPANTS

A faculty participant, representing the selected educational program undergoing evaluation, will do the following:

1. Attend an Orientation Meeting. (Review of expectations and materials.)
2. Assist the Dean and Division Chair in identification of community participants.
3. Act as an observer/recorder in the DACUM session.
4. Organize the competencies identified in the DACUM session into chart form.
5. Edit the DACUM chart as appropriate.
6. Revise the program competency statements (program objectives or outcomes).
7. Complete a program audit, identifying the course(s) in which the DACUM competencies are included or should be included.
8. Revise the core courses' outlines to meet standardized college format and to reflect identified competencies.
9. Identify curriculum changes necessary which require approval through the curriculum process (new courses, revised course description, revised contact hours, and/or new program sequence).
10. Revise or develop course syllabi for specified courses.
11. Develop criterion-referenced exams or evaluation tools for specified courses.
12. Meet at least once weekly with an assigned Instructional Resources representative to review progress.

B. Discipline or Division Ongoing Activities:

1. Obtain verification of the DACUM competency profile by the discipline/division, faculty, advisory committee and/or employer surveys.
2. Initiate curriculum change proposals.
3. Investigate articulation possibilities with secondary and post-secondary institutions.
4. Finalize articulation agreements.

GUIDELINES FOR PANEL SELECTION

A DACUM panel is ideally comprised of twelve individuals from the community.

1. Ten members should be actual practitioners of the occupation undergoing analysis.

2. The practitioners should be from entry-level positions that graduates of the El Paso Community College program would be seeking.

3. Two members should be direct supervisors of these practitioners.

4. All individuals should be currently working in the field.

Points to Consider in Selection Process

1. Define the occupation to be analyzed (be careful not to be too broad or too narrow).

2. Identify sources of panel members:
   A. Determine geographic area (labor market).
   B. Do <u>not</u> use instructors as panel members.
   C. Instructors may know contact persons to consider.
   D. Advisory Committee members may identify potential panel participants. It is best <u>not</u> to have an Advisory Committee member on the panel. The Advisory Committee is used for verification of the DACUM competency profile.
   E. Former students who are currently employed in the field, may be panel members or may identify potential sources for panel members.
   F. Other sources for information:
      1) Business/professional associations.
      2) Chamber of Commerce.
      3) Yellow pages of the telephone directory.
      4) Employment agencies.

3. Criteria for Selection:
   A. Technical competence.
   B. Full-time employment.
   C. Occupational representativeness.
   D. Ability to communicate.
   E. Ability to cooperate as a Team Member.
   F. Freedom from bias.
   G. Full-time committment.

Suggested Steps in Selection of Panel Participants

1. Contact the company to ask if they are willing to participate by releasing one of their best workers for one day.
   A. Make an appointment to visit the company to personally explain the DACUM process.
   B. "The college needs the company's assistance to update/establish a relevant training program."
   C. Write a formal letter of request to the company.

Suggested Steps in Selection of Panel Participants (Continued):

2. Contact the prospective committee member:
   A. A personal meeting or telephone contact is the most successful method.
   B. Explain the DACUM process.
   C. Explain that no preparation is necessary.
   D. Encourage participation for the total session.
   E. Send a letter to confirm arrangements.

	Competencies	Program Description	Degree Plan	Course Outline	Instructor Course Syllabus	Criterion Referenced Exam	Challenge Exams	Articulation Agreement	Student Competency List
PURPOSE:	Identifies knowledge, skills, and attitudes to be mastered by student upon completion of program. Sources: DACUM Session, Surveys external agencies and advisory committees.	a. Provide students and potential students information on career field, needed characteristics, requirements. b. Provide employers and other educational institutions information on program content and student competencies.	Describes requirements for a given course of study.	Lists specific objectives to be mastered for that particular course, required texts, any general guidelines for grading. To be followed by all instructors teaching a given course. (See College format in Faculty Handbook)	Prepared by individual instructor to describe how he teaches the course and covers the common course objectives. (See College format in Faculty Handbook)	Evaluate the extent to which students have achieved desired performance standards of course objectives.	Provide opportunity to demonstrate course competencies without taking the course.	Provide mechanisms for students to get credit for mastery of agreed upon competencies in one institution at other educational institutions.	Documentation of student competencies achieved at one institution for awarding of credit at a second educational institution.

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CRITERIA FOR PROGRAM DESCRIPTION
EPCC CATALOG

1. Each degree plan and each option presented in the catalogue will have a program description.

2. The program description format shall be:

   (a) Presented in narrative using complete sentences.
   (b) Concise.

3. The total length of the program description shall not exceed:

   (a) 1500 characters for core programs.
   (b) 600 characters for each option.

4. The program description content will (as appropriate):

   (a) Describe the emphasis or purpose of the program for the student.
   (b) State the outcome (i.e., degree accorded.)
   (c) State relationship to other degree plans within discipline if applicable.
   (d) State transferability criteria if applicable.
   (e) State eligibility of student for licensure or certification exams, if applicable.
   (f) State special accreditation status of the program, if applicable.
   (g) Other items as appropriate to program and space allocation.

6/25/84
Revised 7/30/84

Medical Assisting Technology Program

A student who has successfully completed the requirements of the Medical Assisting Technology Program will -

1. Maximize correct usage of medical terminolgy through the use of Latin and Greek roots and affixes and through the use of medical dictionaries and pharmaceutical directories.

2. Identify the most common pathological problems and accompanying symptoms that affect the major body systems; outline basic first aid procedures, injection procedure, and basic laboratory test procedures.

3. Establish and maintain professional communication with co-workers, supervisors, patients, and health care personnel.

4. Outline basic ethical and legal parameters in the practice of medicine and identify reports and forms that are required by state or federal laws.

5. Maintain record and filing systems, telephone appointments, business correspondence, insurance claims, and business accounts commonly found in a medical office environment, utilizing and operating necessary office equipment.

6. Demonstrate the use and care of medical equipment used in the medical office, outlining sterilization precautions, patient preparation, and safety hazards.

7. Apply for the Certified Medical Assistants examinations administered by the American Association of Medical Assistants.

SAMPLE PROGRAM DESCRIPTIONS

1. Sample program description for transfer curricula:

BIOLOGICAL SCIENCES
ASSOCIATE OF SCIENCE DEGREE

The two-year Biological Sciences Program is designed to prepare those students who will transfer directly into a Bachelor's Degree program in the biological sciences at a four-year institution.

NOTE: Students planning to transfer to a four-year institution should check degree requirements of the college or university to which they plan to transfer.

2. Sample program description for core occupational curricula:

ACCOUNTING ASSOCIATE
ASSOCIATE OF APPLIED SCIENCE DEGREE

The two-year Accounting Program with Financial, Governmental, and Managerial Options is designed for persons interested in pursuing careers as junior accountants in business, industry and government. Emphasis will be placed on internal accounting procedures and generally accepted accounting principles as they relate to external reporting with an opportunity to select support courses from any of the options. Successful completion of the core curriculum and one of the options leads to an Associate of Applied Science Degree.

3. Sample program description for an option:

ACCOUNTING ASSOCIATE
GOVERNMENTAL OPTION

The governmental concentration in Accounting is designed to provide accounting education for work in government and non-profit organizations (such as hospitals, universities; health and welfare organizations, co-ops and clubs.) Emphasis is placed on newly formed, generally accepted accounting principles and standards required of these organizations for accounting, recording, and reporting. Students must successfully complete the Core Curriculum plus the courses listed below.

EL PASO COMMUNITY COLLEGE Revised: 1-85

GUIDELINES FOR STANDARDIZED COURSE OUTLINE FORMAT

The course outline is a description of the course including a list of the specific objectives. Objectives are agreed upon by members of the discipline, and are applicable to all sections.

The instructor uses the course outline as a basis for preparing his/her syllabus for the semester. The outline provides uniformity in the course, yet allows the instructor the freedom to apply his/her own teaching style.

The following directions are to be followed when preparing future official course outlines.

1. Utilize the format shown in the sample course outline.

2. Include all outline headings and associated materials.

3. Use only approved college subject area title, course titles, course identification codes, numbers, etc., when referring to existing courses.

4. Prepare outlines on standard white 8 1/2 x 11 bond paper.

5. Use capital letters and Roman numerals to indicate outline heading data.

6. Leave two blank lines before starting a new outline heading. Narrative materials are single spaced.

7. Enter responses to outline headings in the area next to the appropriate heading in a manner similar to the italicized directions on the outline sample.

8. Date and number the first page in the upper left margin with the following:

   Date
   Page ____ of Outline

   Identify date and number subsequent pages with the following:

   Subject Area Code/Course #
   Date
   Page ____ of Outline

9. Use the adopted alpha subject area code only.

10. For abbreviations, spell out terms, then abbreviate. e.g., "The student must determine the correct ground control approach (GCA)."

11. Apply complete bibliographic information in the format by Turabian as in A Manual for Writers, available in the bookstore, library, and division offices.

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12. A basic-level performance objective must be achievable and measureable. The minimum acceptable statement of performance objectives will contain:

    A. An action verb (e.g., write, draw, define).

    B. A description of what the student will be able to do/demonstrate at the end of the course.

    C. One outcome per objective.

Advanced levels of performance objectives complete with conditions and criteria for success are encouraged.

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OFFICIAL COURSE OUTLINE

SUBJECT AREA TITLE _____

SUBJECT AREA CODE/COURSE NUMBER _____

COURSE TITLE _____

COURSE HOURS _____ Credits _____ : _____ Lec Lab

I. CATALOG DESCRIPTION

(This description is verbatim to the state approved description. Newly proposed descriptions will follow the adopted criteria for course descriptions.)

II. COURSE OBJECTIVES

(These performance objectives represent the requirements of the course. All students are expected to master these common objectives. State the performance objectives as indicated below.)

Upon satisfactory completion of this course, the student will be able to

A.

B.

C.

III. UNIT TITLES

(Those major areas which will be addressed by the course are listed as units. A capsule description of the content of each unit is required.)

IV. TEXTS AND MATERIALS

(Required and optional texts and materials are listed in bibliographical form. Indicate where these are available. Use Turabian as a guide.)

A.

1.

2.

B.

1.

2.

V. INSTRUCTOR'S RESOURCES

(List in bibliographical form those books, films, tapes, etc., which will help the instructor in class preparation. Indicate where they are located.)

A.

1.

2.

B.

VI. EVALUATION MEASURES

(State the general guidelines for grading as agreed on by the faculty of a discipline. Indicate the suggested criteria to be used to determine whether students have met the stated objectives of the course. The process of preassessment, whether for challenge or diagnosis; postassessment and remediation are described.)

(EXAMPLE OUTLINE FORMAT)

OFFICIAL COURSE OUTLINE

SUBJECT AREA TITLE	NURSING
SUBJECT AREA CODE/COURSE NUMBER	NRSG 2102
COURSE TITLE	MATERNAL CHILD NURSING - CLINIC
COURSE HOURS	2 Credits — 0 : 8 Lec Lab

I. CATALOG DESCRIPTION

Provides clinical experience for the vocational nurse in nursing care for maternity and newborn patients. Corequisite: NRSG. 2103. (128 clock hours) (4 week course) (0:8)

II. COURSE OBJECTIVES

Upon satisfactory completion of this course the student will be able to

A.. Implement the nursing process in a clinical setting with emphasis on planning and implementation to include basic scientific rationale for nursing actions.

B. Provide nursing care in a clinical setting with accountability, responsibility and an awareness of own limitations, selecting appropriate guidance in areas of weakness.

C. Refer patient/family to community/hospital resources at a level appropriate to the vocational nurse.

D. Report pertinent patient care information with increasing competence, in a clinical setting.

E. Plan appropriate nursing care in structured care settings, identifying biological, psychological, social, cultural and communicating needs of the patient.

F. Assess the pregnant woman's reaction during labor, delivery, and post partum, and implement appropriate actions.

G. Utilize specialized equipment during labor and delivery.

H. Utilize basic principles of the teaching-learning process.

I. Carry out the responsibilities of a nursing team member in an obstetrical area.

(EXAMPLE OUTLINE FORMAT)

III. UNIT TITLES

A. Unit I - Nursing Process

This unit includes the development of written patient care plans and implementation of those plans based on scientific rationale.

B. Unit II - The Role of the Vocational Nurse as a Professional

This unit discusses legal aspects of maternal - child nursing care.

C. Unit III - The Role of Vocational Nurse as a Communicator

This unit presents an overview of hospital/community resources available for the patient and the family and identifies the role of the vocational nurse in the referral process.

D. Unit IV - The Role of the Vocational Nurse as a Provider

This unit includes implementation of nursing care in special situations:

Module A - Care of the Antepartum Patient
Module B - Care of the Patient in Labor and Delivery
Module C - Care of the Postpartum Patient
Module D - Care of the Neonate

E. Unit V - The Role of the Vocational Nurse as a Manager

This unit includes the development and implementation of a teaching plan for the obstetrical patient.

F. Unit VI - The Role of the Vocational Nurse as a Manager

This unit covers the recognition and assumption of responsibilities of a nursing team member on obstetrical units.

IV. TEXTS AND MATERIALS

A. Texts

1. Bethea, Doris. Introductory Maternity Nursing. Philadelphia: J.B. Lippincott, 1984. (Available in EPCC Bookstore)

2. Packet for Nursing 2102. (Available in EPCC Bookstore)

B. Other Materials

Allied Health and Nursing Student Handbook. El Paso Community College, 1984. (Available in EPCC Bookstore)

(EXAMPLE OUTLINE FORMAT)

V. INSTRUCTOR RESOURCES

A. Reeder, Sharon, et al. Maternity Nursing. (15th ed). Philadelphia: J.B. Lippincott Co., 1984. (Available from Nursing Office)

B. Brunner, Lillian and D. Suddarth. Textbook of Medical-Surgical Nursing. Philadelphia: J.B. Lippincott Co., 1984. (Available from Nursing Office)

VI. EVALUATION MEASURES

A. Grading

The student's clinical performance will be directly observed by a nursing faculty member and achievement measured by the clinical evaluation tool. Written plans of care will also be evaluated. Total points achieved by actual nursing practice plus written work will determine course grade. The student must earn a grade of 70% or higher in order to be given credit for this course. Evaluation tools are in the course packet.

Grading Criteria

Standards of Practice	-	35%
Competency Evaluation	-	45%
Nursing Care Plans	-	10%
Teaching Plans	-	10%
		100%

Grading Scale

90 - 100 = A
80 - 89 = B
70 - 79 = C
0 - 69 = F

*Students must complete a drug dosage calculation exam at 90% or above to obtain credit for this course and to obtain a certificate of completion in vocational nursing.

B. Pre-Assessment

Students enrolling in this course must have successfully completed all previous nursing courses in the degree plan.

C. Remediation

Students will be counseled regarding need for improved performance as indicated. When appropriate, individualized student contracts will be utilized to identify expected remediation. This will follow the policy outlined in the "Nursing Student Addendum" to the Allied Health and Nursing Student Handbook.

C. Remediation (Continued)

Failure of the drug dosage calculation exam will require attendance at math tutoring sessions as scheduled by the nursing department.

Students not achieving a grade of 70% or higher must retake the course.

(EXAMPLE OUTLINE FORMAT)

OFFICIAL COURSE OUTLINE

SUBJECT AREA TITLE	DRAFTING TECHNOLOGY
SUBJECT AREA CODE/COURSE NUMBER	DFTG 3229
COURSE TITLE	COOPERATIVE EDUCATION I
COURSE HOURS	3 Credits — 1 : 20 Lec Lab

I. CATALOG DESCRIPTION

Emphasizes practical training and personal development which is compatible with the major field of study and career goals of the student. The student works 20 hours per week at an approved site and attends a weekly one-hour seminar. Prerequisites: Third semester standing and program approval.

II. COURSE OBJECTIVES

Upon satisfactory completion of this course, the student will be able to

A. Work successfully on a job which relates to his/her major field at least 16 weeks for a total of at least 240 hours.

B. Perform duties which supplement his/her classroom instruction and broaden his/her experience.

C. Perform the tasks listed on a training plan which was developed with the assistance of the employer and coordinator.

D. Discuss the elements of an interview.

E. Discuss the key elements of job hunting.

F. Discuss the role employee attitude plays in successful employment.

G. Write a resume for use in job hunting.

H. Visit a variety of businesses which employ draftsmen.

I. Participate in classroom discussions about drafting related activities observed on field trips.

III. UNIT TITLES

A. Course Organization and Training Plans

Discussed are classroom procedures and expectations. Training plans are completed and signatures are obtained. Students provide input into the semester activities.

B. Seeking Employment

Instruction is given relating to job interviews and resume writing. Students discuss approaches to job hunting.

C. Industrial Survey

Field trips are arranged in an effort to familiarize students with a variety of companies. Discussions are held in class relating to these companies.

D. Student Reports

Students report on their own job requirements and related activities. Drawings which the student completed on the job are utilized.

E. Open Topics

Student may suggest topics for discussion which relate to drafting and employment. This may include special field trips.

IV. TEXTS AND MATERIALS

A. Textbooks

1. Textbook is not required.

2. Randall, Florence. Getting the Job. California: Fearson Publishing Co., 1968. (Optional and are supplied by the department)

B. Materials

1. Job hunting kit #100. (Available in the department)

2. Pen, Model #100. (Available in the EPCC bookstore)

V. INSTRUCTOR'S RESOURCES

A. Books (These books are available in the department library)

1. Hoppock, Robert. Occupational Information. New York: McGraw-Hill Publishing Co., 1975.

2. Keefe, John. The Teenager and the Interview. New York: Rosen Press, 1971.

3. Randall, Florence. Getting the Job. California: Fearon Publishing Co., 1968.

4. Holand, John. Making Vocational Choices: A Theory of Careers. Englewood Cliffs: Prentice-Hall, Inc., 1973.

5. Robertson, Jason, How to Win in a Job Interview, Englewood Cliffs: Prentice-Hall Inc., 1978.

6. Quick, Thomas. Person to Person Managing. New York: St. Martin's Press, 1977.

7. Heermann, Barry. Cooperative Education in Community Colleges. Washington: Jossey-Boss Publishing Co., 1973.

8. Gooch, Bill and Stadt, Ronald. Cooperative Education. Indianapolis: Bobbs-Merrill Co., 1977.

9. Andrews, Margaret. The Job You Want. New York: McGraw-Hill Book Co., 1972.

10. Morrison, Phyllis. Getting the Right Job. New York: McGraw-Hill Book Company, 1972.

B. Film Strips

1. Free Enterprise, #JH7680PK. (Available from National Audio-Visual Center, National Archives and Records Service General Services Administration, Washington, D.C. 20409)

2. Your Job: Applying For It. JS-C-11-1968. (Region XIX)

VI. EVALUATION MEASURES

Preassessment is not required for this course other than meeting the prerequisite requirements. Grading will follow the current El Paso Community College catalog standards. Letter grades are assigned percentage socres based on the following scale.

Grading Scale

93 - 100 = A
85 - 92 = B
77 - 84 = C
70 - 76 = D
0 - 69 = F

One exam will be given at the end of each six-week period. Students will be evaluated on job performance. This grade will be derived from the departmental rating scale as it relates to the training plan. The final grade will be computed by weighting the job performance grade equal to the three combined six-week's grades.

Students scoring less than 76% on a six-weeks test are encouraged to seek remediation. Retake tests will be available to replace each six-weeks test for those students who score 76% or less. It should be emphasized that retake tests are different from the original tests. Each retake test must be taken within 10 days of the original test. The I and W grade will be assigned as appropriate.

REQUIRED FORMAT AS PER CONTRACT STIPULATIONS

FORMAT
COURSE SYLLABUS

A syllabus is a detailed description of the course as it is taught by the individual instructor. It is prepared by the instructor, based on the course outline, and submitted to the Division Chair.

The syllabus is given to the student. By providing this information to the student, the instructor allows the student a major share in the responsibility for the student's success in the course.

The syllabus contains the following components:

I. Course Title and Number	The catalog description is stated here two spaces under the title and number.
II. Rationale	The rationale describes and justifies to the student, the content, intent, and application of the information included in the course.
III. Objectives	Detailed objectives for each unit are provided in the syllabus. These objectives may expand on the general objectives listed in the course outline. Care must be taken by the instructor not to add objectives which are duplicated in other courses within the discipline.
IV. Instructional Methodology	The instructor describes the teaching techniques which he/she will employ in the course.
V. Learning Activities	Specific learning activities are described either in the course syllabus or in the modules (learning packets) to which the student is referred by the syllabus.
VI. Evaluation	Evaluation methods are described for the student's benefit. A specific grading scale is also provided by the instructor. Remediation procedures are discussed; % of assignments/exams given in relation to the final course grade.

VII. Text and Materials	Required and optional texts are listed. This section also includes a list of required optional equipment (such as tools, supplies, etc. which the student must provide). These must be listed in bibliographical form and an indication of availability is required.
VIII. Calendar	A detailed calendar of subjects and activities to be studied during the semester is included.
IX. Instructor	Instructor's name, office, phone and office hours are provided.

GUIDELINES FOR DEVELOPING A CRITERION-REFERENCED EXAM

I. PURPOSES OF TESTING

There are three basic reasons for giving an examination: instructional, mastery evaluation, and measurement of achievement. The purpose of testing helps in the determination of the number of test questions, the type of questions, and the appropriate difficulty (or cognitive/ affective level) to include on each examination.

Tests which are used for instructional purposes serve both diagnostic and teaching functions. They help the student to identify his/her strengths and weaknesses. Instructional tests often emphasize and reinforce major points presented during instruction. An example of an instructional test is a "daily pop quiz."

Mastery examinations are based on the theory that learning is sequential. The students know exactly what content is to be tested and what competence level is required. In criterion-referenced testing, the student's performance is compared to the minimal acceptable criterion rather than comparing the student's individual performance to the group's performance.

The third type of testing, measurement of achievement, is the most frequently used form of testing. It often serves as the basis for grading, retention, or promotion. It is often referred to as a norm-referenced examination.

II. WHAT IS A CRITERION-REFERENCED EXAMINATION?

Criterion-referenced testing (CRT) measures the degree by which the individual has attained a competency rather than comparing the relative behavior of students. Whether the test is an effective measure of the set standard depends upon several factors, including:

1. the skills of the test developer.
2. the specific behavior to be evaluated.
3. the perception of the behavior and the test items by the student.

In CRT, scores may be reported in terms of reaching or not reaching a specific behavior (PASS-FAIL). Scores may also be reported based on the level achieved on a specific measurement scale, such as percent scores. Thus, criterion-referenced testing may merely indicate presence or absence of a behavior or it may indicate achievement of a specific standard of performance.

In CRT, it is important to consider not only cognitive information but what the processes are that are utilized by the student in obtaining (learning) and in using the information. Test questions which reflect the areas of problem-solving are thus more reliable indicators in CRT than questions asking for simple recall of information. This concept is reflected in the following definition from Burns:

> A CRT is a measure of the degree of the effectiveness of the interaction between the elements of instruction, the strategy presented for learning, and the learning and ability of the learner.

CRT is most useful in measuring skills, thought patterns, and mental processes. Thus it can be used for in cognitive, affective, and psychomotor domains.

Creation of a single test item by which to measure each terminal objective or competency of a unit, a course, or program is impossible. However, a multiple item test can be used to measure behavior development. When sequenced appropriately, these tests can then measure the student's attainment of the final behavior or competency.

Another way of utilizing CRT would be to ensure that key items are mastered at a 100 percent level prior to continuing to the next unit of instruction. This concept, however, also involves self-paced units of instruction and the availability of remediation when the student does not attain the competency.

III. MATCHING TEST ITEMS TO OBJECTIVES

A major purpose of any test is to determine how well the student has accomplished the course or unit objectives. Therefore, it is extremely important that test items measure those objectives. Test items which are developed by objectives always test behaviors at the same or lower cognitive or affective level as stated in the objective.

When writing test items, developing them before teaching the unit will give the opportunity of field-testing questions in pop quizzes, revising prior to the examination, and serving as a guide to class preparation. It is important to remember that written tests can never measure all that the student has learned. Test questions are representative of student progress.

IV. CONSTRUCTING TEST ITEMS

There are two basic categories of test questions: selection and supply. Selection questions are those items which require that the student select a guided response. Examples include true-false, matching, and multiple-choice. Supply questions are those items which require the student to supply the answer. Examples include completion, short answer, and essay questions.

A. TRUE-FALSE ITEMS

True-false questions are composed of a single statement which the student is required to categorize as accurate or inaccurate. They allow the instructor to sample a large amount of content in a short time. In addition, they are scored easily, rapidly, and reliably.

True-false questions are most effective in measuring students' understanding of factual material. When used as a variant of the traditional true-false statements, the agree-disagree question may be used to measure affective learning.

Some guidelines for using true-false questions are:

1. Use only if there is a definite true or false answer.
2. Avoid using specific determiners such as never or always.
3. Rephrase textbook material rather than using direct quotes.
4. State items positively.
5. Have an equal number of true and false responses.
6. When possible, provide a context for the questions, i.e. a hypothetical situation.
7. Use multiple items to test concepts --(10 questions are ideal).
8. When possible, group questions under a common heading.

B. MATCHING

Matching consists of a set of directions with two homogeneous lists in parallel columns. The left column should consist of the items to be matched while the right column contains responses which coordinate with the left column.

Advantages of using matching are similar to those of true-false questions. A large amount of content can be tested in a short time, yet it can also be scored easily and reliably.

Matching questions are most effective in measuring factual information such as terminology and definitions, symbols and abbreviations, equipment and uses. However, test items may be developed at higher cognitive levels and also at affective levels--they are just more difficult to construct.

Some guidelines for developing matching questions are:

1. Keep the list relatively short but still challenging (between 5 and 20 items is recommended by most texts.)
2. Label each list.
3. Arrange lists in a logical sequence (alphabetical, chronological, etc.) whenever possible.
4. Do not have exact numbers of responses.
5. Make directions clear.
6. Keep responses brief.

C. MULTIPLE CHOICE ITEMS

Multiple choice questions consist of a stem (an incomplete statement or q question) followed by a list of options from which the student must select the best response. These types of questions allow testing at higher cognitive and affective levels, especially when related to a case study.

Multiple choice items are difficult to construct, especially at higher levels of learning, but they are easily and quickly scored. Guidelines for developing good multiple choice questions are:

1. Present a single idea in the stem.
2. Phrase the stem positively whenever possible.
3. Underline or capitalize negative words or exceptions.
4. Make alternatives grammatically consistent with the stem and with each other.
5. Include either 4 or 5 responses when possible.
6. Use plausible distractors.
7. Avoid use of ALL OF THE ABOVE or NONE OF THE ABOVE as distractors.
8. Vary the position of the correct answer.
9. Rephrase text language rather than use quotes.
10. Introduce a series of multiple choice questions with a case study for higher level questions.

D. COMPLETION

Completion questions include those items which are "fill in the blank" and short-answer responses to a question. These items are very easy to construct, yet are difficult to score.

Other than application of mathematical concepts, most completion-type questions measure factual recall. They may, however, be constructed to include affective areas of testing.

Guidelines for constructing completion/short-answer questions include the following:

1. Make the stem specific so that the response is limited.
2. Place missing information at the end of the statement.
3. Indicate the degree of precision required for questions requiring calculations.
4. Use completion items for instructional rather than for mastery or achievement testing.
5. Provide a case study for higher cognitive leval or for the affective domain.

E. ESSAY QUESTIONS

Essay questions allow the student freedom of response and require very little time for actual test construction. Scoring the essay question, however, is very difficult, time consuming, and unreliable. Good essay questions emphasize concepts and processes rather than a restating of facts. Essay questions also have the advantage of allowing the student practice and improvement in written expression. They are an excellent method of simultaneous evaluation for both cognitive and affective learning in relation to a given area or in a situation.

V. ASSEMBLING THE TEST

When assembling the test, consider placement of items for ease in answering the test. Items measuring the same objective should be grouped together. (Check them to see if they indicate MASTERY of an objective). Items should also be grouped according to the item type within the sequence of objectives to help students organize their thinking.

Write clear, complete, and concise directions on the first page of the examination. The test should be identified as to content areas being tested. There should be instructions on how and where to record answers. If there are any time limits or special instructions these should also be specified at the beginning of the test, preferably in writing. When test questions are of varying point value this should also be clearly identified on the test.

VI. THE DOMAINS OF LEARNING (AND TESTING)

Bloom identified three domains of learning which form the basis for curriculum development and implementation. Since evaluation is inherent in our educational system, these domains also play an important role in evaluation and testing of the teaching-learning process.

The three domains of learning are cognitive, affective, and psychomotor. Of these three areas, the cognitive area consists of the largest proportion of educational objectives. This area is also the most likely to be tested as it is easier to construct test questions which are based on the previously discussed principles.

A. THE COGNITIVE DOMAIN

The cognitive domain refers to those behaviors which involve remembering something and using that information to solve problems or to create new ideas and concepts. This range of cognitive learning has been oganized into six (6) cognitive levels by Bloom. These are knowledge, comprehension, application, analysis, synthesis and evaluation.

1. KNOWLEDGE is the lowest level of learning. It includes recall and memory. Questions which measure knowledge require that the learner recall specifics such as terms, dates, events, persons, place, or principles.

2. COMPREHENSION is the lowest level of understanding. Students are able to make use of the idea without relating other materials. Comprehension includes paraphrasing and also interpretation.

3. APPLICATION requires the use of information in specific situations. It requires use of intellectual skills.

4. ANALYSIS requires that information be taken apart and relationships formed.

5. SYNTHESIS requires that the learner be able to reassemble the parts for a new meaning or pattern.

6. EVALUATION is the highest cognitive level. It involves making judgments and selecting one alternative over all the rest.

B. AFFECTIVE DOMAIN

The affective domain has been delineated by Krathwohl and Bloom to include various hierarchial levels. Affective domain involves those behaviors which emphasize an emotion or feeling and also involves areas of acceptance or rejection. Areas involved in affective learning include interests, attitudes, values, appreciation, and adjustment.

The levels in the affective domain include five (5) classifications--receiving, responding, valuing, organization, and characterization.

1. Receiving involves learning to be conscious of one's feelings.
2. Responding involves complying or being satisfied with one's feelings.
3. Valuing involves the setting of standards or patterns of choice with worth.
4. Organization includes conceptualizing the value system.
5. Characterization is an internalization of the response.

C. THE PSYCHOMOTOR DOMAIN

The psychomotor domain of learning emphasizes the learning of motor skills which require neuromuscular coordination. These areas are best evaluated through demonstration, although some concepts may be tested at the cognitive level (i.e. which step should be done first.) The psychomotor domain is usually evaluated by a tool in which the behavior desired is directly observed. The development of evaluation tools based upon stated objectives or competencies would follow similar principles as test development.

VII. TEST BLUEPRINTING

A test blueprint is a plan for a test indicating content and cognitive/affective levels to be tested. The main purpose of a test blueprint is to establish test validity.

Using a test blueprint as a guide in test construction requires that the developer(s):

1. Coordinate instructional objectives with content and cognitive/affective levels.
2. Determine the relative emphasis for each content area and cognitive/affective level.
3. Determine test item structure and content.
4. Determine the number of test items.

Once the plan has been developed, then actual test construction is implemented.

VIII. EXAMPLES OF CRITERION-REFERENCED TEST ITEMS

In finalizing test formats for criterion-referenced tests, it is first important to determine what criterion is to be utilized as the basis for the test. A CRT could be based on unit or module objectives, with questions relating to the specific objectives/competencies identified for that unit or module. A CRT could be constructed as a final examination, based on the terminal objectives or competencies. Total program competencies could be tested in a progressive sequence throughout the program or in a complete block at the end of the program.

One method of formating a criterion-referenced examination is to use the test blueprint as previously discussed. Another method is to structure the exam based upon the competencies. The subject area of the competency may be listed on the test as a topic for a specific section of the examination. Alternatively, the entire competency statement or objective may be placed on the exam for the students' reference before answering the question(s).

Regardless of which of the above methods of formating the examination, it is critical that the students know the competencies and the expected level of performance which is required for mastery. When the competency/objective is not stated in some manner on the examination itself, the student should have this information in the syllabus or course outline. The student should have this information throughout the course, not just at examination time.

The following item is a sample of a short-answer test question evaluating an affective domain objective.

OBJECTIVE: Apply the communication skills of paraphrasing and reflection of feeling.

TEST ITEM: "I've tried and tried to make friends since coming here but I still do not feel that anybody cares." (1) Paraphrase the above response. (2) Formulate your response to the expression of feeling. "You feel———"

An example of an agree/disagree type response question which could be used to evaluate affective domain follows.

For each of the following circle "A" if you agree with the statement and "D" if you disagree.

I. Patients should be allowed to die without excessive intervention methods to support life if this is their desire. A D

The following is an example of a multiple choice question which evaluates the affective domain.

Objective: Willingness of nurse to allocate decision-making to the patient.

Test item. Susan has been admitted following a car accident. She is not seriously injured yet appears depressed. Her brother arrives and asks your permission to take Susan to see her mother who is not expected to survive. Susan seems anxious to see her mother. Who should decide?

A. Susan, the patient
B. You, the nurse
C. The brother
D. The mother
E. The physician

In evaluating the cognitive domain, the test format appears the same as the previous examples. However, in looking at the behaviors stated, it is possible to differentiate the domains of learning actually measured. The following questions are examples of measurement in the cognitive domain at various levels.

A knowledge level question:

Physiologic anemia during pregnancy is a result of:

A. Increased blood volume of the mother.
B. Decreased dietary intake of iron.
C. Decreased erythropoiesis after the first trimester.
D. Increased detoxification demands on the mother's liver.

The following question is an example of a problem-solving question. In terms of Bloom's taxonomy, it is measuring evaluation.

SITUATION: Mary, aged 19 years, 39 weeks gestation, was admitted with ruptured membranes. On examination her cervix is 100% effaced, 2 cm. dilated, and the fetus is at 0 station, vertex presentation. Mild contractions are every 5-6 minutes, lasting 35-40 seconds. FHR is 136/min; BP 135/80, P 100, R 20, T 37. Mary is lying rigid in bed with her fists clenched, eyes staring straight ahead. As another contraction starts, Mary cries out, "Oh, no. Its coming again. Do something."

On the basis of the above findings, the nurse should draw which of the following conclusions?

1. Mary is in the active phase of labor
2. The cervix is prepared for labor.
3. Mary is in the latent phase of labor.
4. The presenting part is engaged.

A. 1,2,and 4
B. 2,3,and 4
C. 1 and 2
D. 1 and 4

In evaluation of psychomotor behaviors, the most common method utilized is an evaluation tool. An effective evaluation tool is one which states the competency or objective, identifies the criteria for mastery of the objective, and then presents an area for the evaluation. The actual evaluation occurs through direct observation. An example of an objective and criteria follow.

Objective: Draw up and administer precalculated intramuscular medication.

Criteria: Checks the physician's order.
Checks the label on the bottle.
Checks the calculated dosage.
Use sterile technique.
Draws up correct dosage.
Selects appropriate site.
Administers correctly.

Test situation: Given an order, the student administers an injection to a manikin in the lab.

FOR ADDITIONAL INFORMATION OR ASSISTANCE IN TEST DEVELOPMENT OR TEST BLUEPRINTING IN RELATION TO COURSE/ UNIT/PROGRAM OBJECTIVES OR COMPETENCIES PLEASE CONTACT THE CURRICULUM OFFICE, THE TESTING CENTER, OR THE INSTRUCTIONAL DEVELOPMENT OFFICE.

Prepared by Paula Mitchell, RNC,MSN
Nursing Instructor/Curriculum Facilitator

6/21/84

ANALYSIS CHECKLIST FOR SELF-REVIEW
TEST DEVELOPMENT

COURSE: DATE:
UNIT OR MODULE TESTED:

REASON FOR TESTING: Instructional Mastery Achievement

GRADING CRITERIA/STANDARDS:

EXAMINATION CONTENT:

1. Instructions to the student are clearly stated? Yes No

2. List of materials, instruments, etc., needed for the exam are clearly stated? Yes No Not applicable

3. Exam includes the following types of questions.
NOTE: It is preferable to have no more than three different types of questions on an examination.

True/false	Multiple choice	Matching
Completion	Short answer	Essay
Demonstration	Other:	

4. Exam includes the following domains:

Cognitive Affective Psychomotor

5. Within the cognitive domain, the following levels are included:

Knowledge	Comprehension	Application
Analysis	Synthesis	Evaluation

6. Within the affective domain, the following levels are included:

Receiving	Responding	Valuing
Organization		Characterization

7. Test has been arranged according to :

Subject	Chronological sequence	Difficulty
Item type	Alphabetical sequence	Other

8. Exam has been proofread by someone else. Yes No

9. Copies of the exam are collated in correct sequence and are legible.

10. Additional comments:

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Brown, Barbara and Chinn, Peggy. NURSING EDUCATION: PRACTICAL METHODS AND MODELS. Rockville, Maryland: Aspen Systems Corporation, 1982.

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TO: Faculty
FROM: Richard Drum
For your information

TAXONOMY OF EDUCATIONAL OBJECTIVES

The Cognitive Domain and The Affective Domain (per Bloom, et.al.)

COGNITIVE

(Be able to judge the value of material for given purposes)

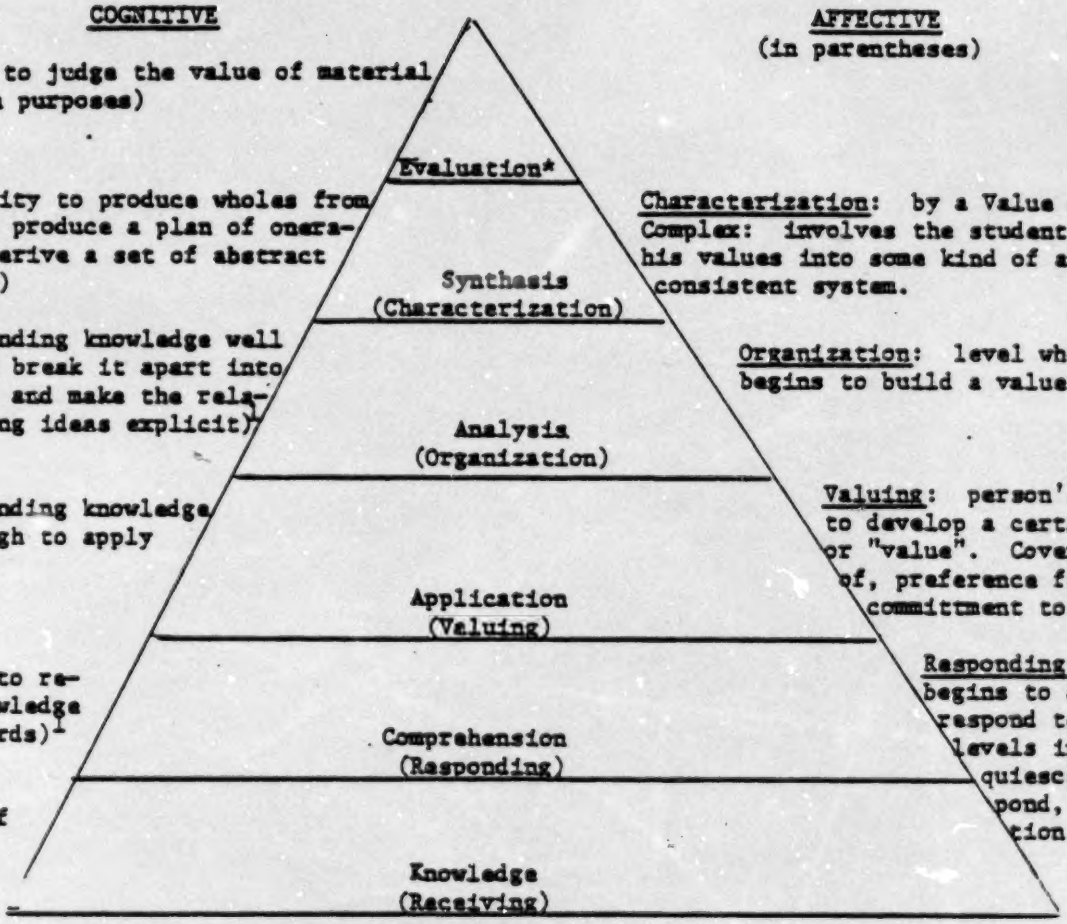
(The ability to produce wholes from parts, to produce a plan of operation to derive a set of abstract relations)

(Understanding knowledge well enough to break it apart into its parts and make the relations among ideas explicit)[1]

(Understanding knowledge well enough to apply it)[1]

(Ability to restate knowledge in new words)[1]

(Recall of content)[1]



AFFECTIVE
(in parentheses)

Characterization: by a Value or a Value Complex: involves the student's organizing his values into some kind of an internally consistent system.

Organization: level where person begins to build a value system.

Valuing: person's beginning to develop a certain "attitude" or "value". Covers acceptance of, preference for, and committment to a value.

Responding: student begins to actively respond to the stimuli; levels include--acquiescence in respond, & satisfaction in response.

Receiving: learner's being sensitive to the existence of certain stimuli; includes--awareness, willingness to receive and controlled or selective attention.

* Consists of quantitative and qualitative value judgments about material and methods, use of a standard of appraisal, utilization of criteria, etc.

[1]Convergent thinking.

PERFORMANCE OBJECTIVES

PARTS

1. PERFORMANCE. AN OBJECTIVE ALWAYS SAYS WHAT A LEARNER IS EXPECTED TO BE ABLE TO DO.

2. CONDITIONS AND/OR LIMITATIONS. AN OBJECTIVE ALWAYS DESCRIBES THE IMPORTANT CONDITIONS (IF ANY) UNDER WHICH THE PERFORMANCE IS TO OCCUR.

3. CRITERION (LEVEL OF EVALUATION). WHEREVER POSSIBLE, AN OBJECTIVE DESCRIBES THE CRITERION OF ACCEPTABLE PERFORMANCE BY DESCRIBING HOW WELL THE LEARNER MUST PERFORM IN ORDER TO BE CONSIDERED ACCEPTABLE.

LEARNING OUTCOMES
COGNITIVE DOMAIN

Class or Category	Measurable Behavior	Verbs for Use in Writing Objectives
1.0 Knowledge (recalling previously learned material)	Defines terms; lists specific facts; states methodologies, principles, and rules.	Define, recall, name, list, repeat, identify, describe, label, match, state, select.
2.0 Comprehension, (grasping the meaning of material)	Converts from one symbol system to another; explains material; and translates the material into own words.	Translate, discuss, describe, explain, summarize, recognize, convert, defend, distinguish, estimate, explains, infer, paraphrase, predict, determine.
3.0 Application (using information)	Applies the appropriate abstraction without being prompted; interprets principles and rules as they apply to practice.	Interpret, illustrates, apply, use, calculate, demonstrate, compute, operate, prepare, produce, solve, show, relate.
4.0 Analysis (breaking down material into its component parts)	Breaks down material into its component parts and compares the parts.	Analyze, differentiate, calculate, compare, identify, contrast, categorize, diagram, determine, distinguish, illustrate, infer, point out, select, relate.
5.0 Synthesis (putting together parts to form a whole)	Produces something unique by restructuring and reordering ideas or objects.	Compose, rearrange, design, create, propose, formulate, devise, organize, write, categorize, combine, explain, plan.
6.0 Evaluation (judging the value of ideas works, solution, methods, materials, and so on)	Critically evaluates ideas, plans of actions, products, and so on, based on definite criteria.	Evaluate, assess, judge, rate, appraise, compare, contrast, describe, distinguish, parallel, relate, test, characterize, separate, discriminate, discern.

*Adapted from Bloom, B.S., editor: Taxonomy of Educational Objectives, Handbook 1; the Cognitive Domain. New York: David McKay Company, 1956.

P. Mitchell
12/82
Revised 6/28/84

LEARNING OUTCOMES
PSYCHOMOTOR DOMAIN

	CLASS OR CATEGORY	MEASURABLE BEHAVIOR	SAMPLE VERBS FOR U IN WRITING PSYCHOMOTOR OBJECTI
1.0	Imitation	Observes skill and attempts to repeat it.	Adjust Repair
2.0	Manipulation	Performs skill according to instruction rather than observation.	Paint Manipulate Weave
3.0	Precision/Practicing	Reproduces a skill with accuracy, proportion, and exactness; usually performed independent of original source.	Make Fasten Pour Diagram
4.0	Articulation/Adapting	Combines more than one skill in sequence with harmony and consistency.	Display Stamp Construct
5.0	Naturalization	Completes one or more skills with ease and becomes automatic with limited physical or mental exertion.	Print Type Wire Develop

Learning Outcomes in the Affective Domain

Class or Category	Measurable Behavior	Verbs for Writing Objectives
1.0 Receiving (being conscious of "attending to" the affective objective)	Listens attentively; attends to; demonstrates awareness, sensitivity, and interest	Listens, attends, selects, prefers, shares, accepts, describes, follows, guides, identifies, locates, names, observes, replies
2.0 Responding (implies a continuum ranging from compliance to satisfaction in response)	Participates in discussion, volunteers, acts willingly, expresses satisfaction in, is willing to support, considers opposing views	States, answers, lists writes, develops, views, imitates, offers shares, supports, appraises, approaches, asks, compares, contrasts, differentiates, watches, discriminates, discusses, evaluates, examines, interprets, questions, reads, recognizes, reports, reviews, selects, summarizes
3.0 Valuing (standards and patterns of choice that have worth)	Assumes responsibilitity, cooperates with, participates in, is convinced of, justifies role of accepts concern for, accepts commitment to	Accepts, acclaims, agrees, assists, helps, respects, supports, participates, attains, visits, demonstrates, volunteers, attempts, joins, commits, completes, concludes, emphasizes, maintains, proposes, reports, shares, supports, verifies, persuades, defends, advocates, criticizes, approves challenge
4.0 Organization (conceptualization of a value system)	Uses systematic planning, practices cooperation, accepts responsibility, participates in, formulates a position, is consistent, takes a stand, serves as a model	Associates, selects, chooses, defends, challenges, advocates, assesses, criticizes, judges, approves, argues, debates, declares, defends, advises, alters, arranges, cooperates, displays, influences, initiates, organizes, practices, pursues, recommends, relates
5.0 Characterization (internal consistency of response)	Acts consistently, formulates a life plan, consistently demonstrates, serves as a model, stands for, is accountable	Adheres, combines, accepts, defends, demonstrates, exemplifies, extends, generalizes, influences, persists, practices, qualifies, reinforces, synthesizes, verifies

*Adapted from Krathwohl, Bloom, and Masia: Taxonomy of Educational Objectives, Handbook 2; the Affective Domain. New York: David McKay Company, 1964.

SAMPLE ACTION VERBS

Supervisory and Managerial Jobs

Advise	Estimate	Perform
Analyze	Forecast	Plan
Appraise	Implement	Prepare
Approve	Initiate	Process
Assess	Interpret	Recommend
Assign	Interview	Review
Compare	Investigate	Schedule
Conduct	Maintain	Sign
Contact	Manage	Study
Counsel	Monitor	Submit
Determine	Negotiate	Supervise
Diagnose	Observe	Verify
Draft	Orient	
Establish	Participate	

Information-Collection Jobs

Analyze	Confer	Interview	Receive
Ascertain	Consult	Inventory	Review
Audit	Count	Locate	Verify
Calculate	Diagnose	Measure	Weigh
Check	Gather	Observe	
Compile	Identify	Obtain	
Compute	Inspect	Proof	

Decision-Making Jobs

Approve	Determine	Judge
Compare	Estimate	Rate
Decide	Evaluate	Test

Production and Controlling Jobs

Address	Endorse	Paint	Schedule
Adjust	File	Phone	Select
Apply	Fit	Post	Set
Arrange	Greet	Process	Sign
Attach	Grind	Rebuild	Solder
Clean	Install	Recommend	Sort
Compose	Instruct	Remove	Straighten
Deposit	Load	Repair	Submit
Design	Lubricate	Replace	Train
Develop	Make	Reprimand	Transcribe
Disassemble	Maintain	Revise	Type
Distribute	Notify	Rewire	Weld
Edit	Open	Rotate	Write

EL PASO COMMUNITY COLLEGE OFFICE OF CURRICULUM

EVALUATION OF DACUM SESSION

Please respond to each of the following items. Your comments will be used to improve future DACUM sessions.

1. Prior to the DACUM session, what was your understanding of the purpose of DACUM?

2. Did you receive your orientation packet prior to the session? _____
   What was most benefical in the orientation packet? _____
   _____
   What was least beneficial? _____
   _____

	Strongly Agree	Agree	Disagree	Strongly Disagree
3. The DACUM process is an effective tool for analysis of an occupation.	1	2	3	4
4. Members of the group had the opportunity for equal participation.	1	2	3	4
5. The room was arranged to facilitate group process.	1	2	3	4
6. The length of the session was appropriate.	1	2	3	4
7. The facilitator(s) were effective in coordinating the session.	1	2	3	4

Additional Comments:

DATE: _____ PROGRAM: _____

EL PASO
COMMUNITY
COLLEGE
P.O. Box 20500, El Paso, Texas 79998, (915) 594-2000

DACUM ANALYSIS

_____

DATE: _____

FACULTY PARTICIPANT: _____

DACUM FACILITATOR: _____

2/85

EL PASO COMMUNITY COLLEGE
DACUM PROCESS
APPLICATION TO CURRENT PROGRAM

Program: _____ DACUM Session Held: _____

Degree: _____ Faculty Participant: _____

ATTACH A COPY OF CURRENT DEGREE PLAN(S).

COMPETENCY	Is Content Currently Taught in Program?			
	Yes	Course Number	No	Recommended Course

CURRICULUM CHANGE PROPOSAL FORM
(Please Type)

Program Title _____

Frequent and massive changes confuse the students, counselors, and record keepers. They are expensive. Programs which are working correctly and smoothly should be left alone.

Date to be implemented _____ (Changes are implemented in the Fall term after they appear in the catalog)

Updated official course outlines which reflect proposed changes must be attached for the following: new departmental courses, revised course content, and revised course hours.

Changes in program content and sequence are to be supported with a copy of the minutes from the advisory committee deliberations.

Have these changes been collaborated with the division chair for all programs affected? yes __ no __ if not, why not?

Briefly state the overall reason why these program revisions are considered necessary. (Include program layout changes, if any)

Signature and Comments: (Write comments if you do not support a program change)

	Signatures	Dates	yes	no
Initiator: (Proposal has been carefully planned and collaborated with the division chair and program faculty)	_____	_____	____	____
Division Chair: (Proposal has been checked for accuracy and careful planning) Comments:	_____	_____	____	____
Dean: (Proposal has been checked for careful planning and for institutional concerns) Comments:	_____	_____	____	____
Committee Chairman: Comments:	_____	_____	____	____
Vice President: Comments:	_____	_____	____	____

Recommendations

COURSE DESCRIPTION: (Courses which now exist in the catalog are to be prepared using a tape-up and then xeroxed. Courses which are being written for the first time are to be typed. Follow the exact criteria explained on the instruction sheet)

RATIONALE:

Does this course replace an existing course? Yes ___ No ___ If yes, state prefix/number ___
(Refers to dropping a course and replacing with another course covering related material)

Is this course new at EPCC? Yes ___ No ___

Estimate increased equipment costs. _____ Explain if expensive.

COURSE DESCRIPTION:

RATIONALE:

Does this course replace an existing course? Yes ___ No ___ If yes, state prefix/number ___
(This refers to the dropping of a course and replacing it with another course covering related material).

Is this course new at EPCC? Yes ___ No ___

Estimate increased equipment costs. _____ Explain if expensive.

(This form is for adding courses to the program except for support courses)

COURSE DESCRIPTION: (Use a tape-up from the current catalog)

RATIONALE:

Course should be retained in the course description section of the catalog. No ___ Yes ___
If yes, explain:

List other programs affected, if any:

COURSE DESCRIPTION:

RATIONALE:

Course should be retained in the course description section of the catalog. No ___ Yes ___
If yes, explain:

List other programs affected, if any:

(Use this form for deleting courses from program except for support courses)

CASE ONE: USE THIS SPACE FOR COURSE CHANGES WHICH ARE SHORTER THAN ONE (1) LINE LONG.
(Review criteria for writing course descriptions. Tape-up a xerox copy of the current course description. Use a black or red pen and draw a single line through the incorrect parts. Write corrections in the margins and locate by arrows).
PLACE DESCRIPTION AND CORRECTIONS HERE:

CASE TWO: USE THIS SPACE FOR COURSE CHANGES WHICH ARE LONGER THAN ONE (1) LINE LONG.
(Review criteria for writing course descriptions. Tape-up a xerox copy of the current course description. Type revised description using the exact catalog format).
TAPE CURRENT DESCRIPTION HERE:

TYPE REVISED DESCRIPTION HERE:

RATIONALE:

LIST OTHER PROGRAMS AND COURSES AFFECTED:

SUPPORT COURSE CHANGES: Tape-on the current approved support course list and pen in proposed changes. The list should be in numerical order by alpha groups. Support courses should be limited to ten (10) or fewer.

NOTE: This page may be omitted if the changes in support courses are placed on page six (6) or page seven (7). If support course changes are the only changes being made to a program and this page is being used, page six (6) may be omitted.

DRAFTING AND DESIGN TECHNOLOGY
Associate of Applied Science Degree

The Drafting and Design Program is organized to prepare indivi... level employment and to provide continuing educa... ployed in drafting or related ioh...

Working under... This layout is required with all program change proposals (See exception instructions: on page 5). Prepare this sheet by xeroxing a tape-up from the current approved catalog. Proposed support course changes may be made here instead of on page 5. Processing errors such as punctuation and spelling may be made here instead of on page 5. Processing errors in the margins with a black or red pen. Mark out words using a single line so that the original can be read. ...estfully completing the core curriculum will be eligible to receive a ... Drafting Technology.

Core Curriculum

E X A M P L E

First Year

First Semester	Credit Hours	Second Semester	Credit Hours
MATH 3107 Technical Math I	3	MATH 3108 Technical Math II	3
DFTG 4101 Basic Drafting	4	DFTG 4218 Structural Drafting	4
DFTG 4102 Drafting Skills	4	DFTG 4108 Machine Drafting	4
DFTG 3102 Introduction to Drafting	3	DFTG 4207 Residential Plans	4
CONS 3101 Characteristics of Materials	3	DFTG 3105 Statics	3
	17		18

DFTG 4103

Support Courses for all options: ~~DFTG 4102~~ ART 3101, ART 3102, ELTR 4101, ELTR 3101.

Architectural Option

Second Year

First Semester	Credit Hours	Second Semester	Credit Hours
ENG 3111 Expository English Composition	3	DFTG 3201 Professional and Portfolio Development	3
DFTG 4212 Light Construction Plans I	4	DFTG 4213 Light Construction Plans II	4
ART 3101 Design I	3	DFTG 4205 Electrical and Mechanical Planning	4
ART 3102 Drawing I	3	ENG 3117 Technical Report Writing	3
DFTG 3220 Work Experience I or Support Course	3	DFTG 3221 Work Experience II or Support Course	3
	16		17

Civil Option

Second Year

First Semester	Credit Hours	Second Semester	Credit Hours
ENG 3111 Expository English Composition	3	ENG 3117 Technical Report Writing	3
DFTG 4204 Map Drafting	4	DFTG 3201 Professional and Portfolio Development	3
SURV 4102 Introduction to Surveying	4	DFTG 4206 Subdivision Development	4
DFTG 3208 Strength of Materials	3	DFTG 4201 Water Technology	4
DFTG 3220 Work Experience I or Support Course	3	DFTG 3221 Work Experience II or Support Course	3
	17		17

BEST COPY AVAILAB...

DRAFTING AND DESIGN TECHNOLOGY
Associate of Applied Science Degree

The Drafting and Design Program is orga— level employment and to provide— ployed in drafting or — Work—

This page is required for all proposed changes which affect the current approved program layout. Make all changes clearly in the margins with a black or red pen. If there are too many changes to be clearly inserted, retype the layout following the exact catalog format. If retyped, mark all items which have been changed or repositioned with a check (✓).

—rafting —signer Trainee or —y plans, engineering notes or —rections and changes on existing drawings, —ion, and prepare detail drawings ~~and elevations~~ from

~~—udents successfully completing the core curriculum will be eligible to receive a certificate in Drafting Technology.~~

Core Curriculum

EXAMPLE

First Year

First Semester	Credit Hours	Second Semester	Credit Hours
MATH 3107 Technical Math I	3	MATH 3108 Technical Math II	3
DFTG 4101 Basic Drafting	4	DFTG 4218 Structural Drafting	4
DFTG 4102 Drafting Skills	4	DFTG 4106 Machine Drafting	4
DFTG 3102 Introduction to Drafting	3	DFTG 4207 Residential Plans	4
CONS 3101 Characteristics of Materials	3	DFTG 3105 Statics	3
	17		18

Support Courses for all options: DFTG 4102, ART 3101, ART 3102, ELTR 4101, ELTR 3101.

Architectural Option

Second Year

First Semester	Credit Hours	Second Semester	Credit Hours
ENG 3111 Expository English Composition	3	DFTG 3201 Professional and Portfolio Development	3
DFTG 4212 Light Construction Plans I	4	DFTG 4213 Light Construction Plans II	4
ART 3101 Design I	3	DFTG 4205 Electrical and Mechanical Planning	4
ART ~~3102~~ Drawing I	3	ENG 3117 Technical Report Writing	3
DFTG 3220 Work Experience I or Support Course	3	DFTG 3221 Work Experience II or Support Course	3
	~~17~~ 16		17

4101

DO NOT ABBREVIATE

Civil Option

Second Year

First Semester	Credit Hours	Second Semester	Credit Hours
ENG 3111 Expository English Composition	3	ENG 3117 Technical Report Writing	3
DFTG 4204 Map Drafting	4	DFTG 3201 Professional and Portfolio Development	3
SURV 4102 Introduction to Surveying	4	~~DFTG 4206 Subdivision Development~~	4
DFTG 3206 Strength of Materials	3	DFTG 4201 Water Technology	4
DFTG 3220 Work Experience I or Support Course	3	DFTG 3221 Work Experience II or Support Course	3
	17		17

DFTG 4214 MAPPING

BEST COPY AVAILABLE